



# UNITED STATES NAVY Medical News Letter

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No. 1



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*United States Navy*  
**MEDICAL NEWS LETTER**

Vol. 45

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No. 1

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*Policy*

The U.S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, sus-

ceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

*Change of Address*

Please forward changes of address for the News Letter to: Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland 20014, giving full name, rank, corps, and old and new addresses.

**FRONT COVER:** U. S. NAVAL HOSPITAL, PHILADELPHIA, PA. The U.S. Naval Hospital is situated in South Philadelphia, within one mile of the Naval Base. It is a 1200 bed general hospital, with a large outpatient clinic in addition to a large inpatient census. The hospital serves as the principal medical support activity for the Philadelphia Naval Base, the Naval Home (for retired personnel); the Naval Air Station, Willow Grove, the Naval Air Development Center, Johnsville, and the Naval Supply Depot, Mechanicsburg, Pa.

In addition to providing all other types of specialty care, special treatment facilities are available for Surgery for the Deaf, for Aural Rehabilitation (see the Medical News Letter 44(10): November 27, 1964), for Amputations, and also for Psychiatric and Neurological patients. Editor

The issuance of this publication approved by the Secretary of the Navy on 4 May 1964.

U.S. NAVY MEDICAL NEWS LETTER

# Complications of Neurologic Diagnostic Procedures

*LCDR Lyndon U. Anthony MC USNR\*. From the Proceedings of the Monthly Staff Conferences of the U. S. Naval Hospital, NNMCC, Bethesda, Md., 1963-1964.*

In the past several years interest in, and application of, newer diagnostic procedures used in neurologic problems have increased strikingly. For this reason it is considered important for all physicians to have a knowledge of these procedures, and it is the purpose of this discussion to deal specifically with complications of these procedures. Every complication mentioned has been seen by the lecturer, unless otherwise noted.

It is difficult to arrive at a true indication of the incidence of complications, because there is no set plan for reporting such complications. Furthermore, incidence rates vary considerably depending upon the experience of the operator and his indications for the procedure. However, the important point to remember is that complications of each of these procedures occur with enough frequency to render it necessary that we give them due consideration before undertaking them.

## ANGIOGRAPHY

### A. Carotid

Carotid angiography was initially performed by the open technic, that is, an operative cutdown was performed on the carotid in the neck. Of course, as with any surgical operation, there is danger of anesthetic reaction and infection. In addition, there are the risks listed below under the percutaneous technic.

The majority of carotid angiograms are now done under local anesthesia with a percutaneous technic. Infection with this technic is extremely rare. There is only one report of cervical abscess in the literature, and our department has seen none. True allergic or anaphylactic reactions are also rare. I have seen only one in which there were asthma, urticaria, and hypotension. The most common adverse complication is the development of cervical hematoma during or just after the procedure. Occasionally this will be severe enough to cause tracheal compression and necessitate tracheostomy. Temporary paralysis of a vocal cord by the local anesthetic occurs frequently and when coupled with a cervical hematoma, or when the paraly-

sis is bilateral (as it could be with bilateral angiography), tracheostomy is often necessary.

The most common cause of complication with percutaneous carotid angiography is trauma to the vessel wall itself. This includes complete extravasation of the dye, as well as subintimal injection resulting in partial occlusion. Likewise, there is the theoretical possibility of spasm as a result of the needling. The most common effect of any of these types of trauma is a partial occlusion of the vessel, which commonly leads to transient hemiparesis (and aphasia if the dominant hemisphere is involved). Fortunately, this type of hemiparesis ordinarily clears within 2 to 48 hours; however, an occasional one will be permanent. Another type of needle trauma is the development of carotid-jugular fistula. Fortunately these are surprisingly uncommon, and I have seen only one which required surgical correction.

An extremely rare complication can occur in patients with intracerebral aneurysms. Although it has to my knowledge been only reported once in the literature, I have seen two aneurysms which ruptured at the time of carotid injection, with the expected devastating results.

In an occasional case of cerebral tumor or abscess, the patient will gradually deteriorate several hours after an apparently uneventful carotid angiogram. This is thought to be due to an increase in cerebral edema due to an effect of the contrast media on the blood-brain barrier.

Although as stated above it is difficult to arrive at an accurate estimate of complication incidence, an idea of the problem may be gained from the following: in a year's period, during which about 350 carotid angiograms were performed and in a program in which new residents were being trained to do the procedure, the occurrence of major complication was 6% and the mortality for the angiograms and its associated anesthesia was 1.5%.

### B. Vertebral

Percutaneous vertebral angiography is technically more difficult to perform than carotid angiography.

\* Staff physician of the Neurosurgery Service, USNH, NNMCC, Bethesda, Md.



Even in the most experienced hands it is only about 75% successful. Because of this and the potential dangers, many centers are now using some form of brachial, subclavian, or femoral approach for visualization of the vertebral-basilar system.

The complications of vertebral angiography are predominantly those of partial occlusion or even complete thrombosis due to the trauma of attempted punctures. When either of these occurs, the results are apt to be profound due to paralysis of respiratory and cardiac centers. Similar results are obtained by single injections of large amounts (usually more than 15 cc.) of contrast material.

Except for specific problems (such as posterior A-V malformations) it is considered wiser to use one of the approaches discussed below for visualization of the vascular system in the posterior fossa.

#### C. Brachial

Catheterization of the brachial artery, in the arm or at the elbow, is a satisfactory method of visualizing the posterior cranial circulation. This technic involves either passing a catheter into the brachial and up into the subclavian or insertion of a large needle into the brachial and injecting with a pressure injector. Originally, the brachial artery was exposed by cutdown, and so the risk of wound infection was present. Now most brachial angiograms are done percutaneously, and the complications are those of trauma to the brachial artery, with only a rare allergic or anaphylactic reaction to the contrast material. It is quite common that the radial pulse is lost for 2-3 days after brachial puncture. In two instances I have seen severe ischemia of the forearm and hand, and one of these necessitated the amputation of the arm.

When a catheter is threaded into the brachial, when it is passed centrally, it frequently enters the vertebral orifice and passes up the vertebral artery. If this is not recognized, a large amount of dye may be injected and may result in brain stem injury.

#### D. Subclavian

Within the past six years, direct percutaneous injection of the subclavian artery for posterior fossa angiography has come into vogue. At first, this was performed through a supraclavicular route, but the high incidence of hemomediastinum, hemothorax, and pneumothorax has decreased the original fervor for this approach. (I have even seen a dissecting aneurysm of the innominate and right subclavian system following a subintimal injection of the right subclavian artery.) More recently an infraclavicular approach to the subclavian has been used with a much decreased incidence of these complications. However, they still occur occasionally, the most common being pneumothorax.

#### E. Femoral

Here again, femoral catheterization has been found to be useful for study of the posterior fossa circulation as well as the carotid system. The complications from this route have been in general due to the associated trauma to the femoral vessels themselves, with resultant ischemia of the lower extremities.

#### F. Sinography

Injection of the superior sagittal sinus through a burr hole or through the anterior fontanelle in an infant, has little clinical use. The only complication I have seen from this procedure has been one instance of thrombosis of the superior sagittal sinus. Ordinarily the information gained from this test can be gained by the usual carotid angiogram.

### LUMBAR PUNCTURE

By far the most commonly performed neurologic diagnostic procedure is, of course, lumbar puncture. Although the incidence of complication is slight, there are specific conditions in which the incidence rises markedly and the complication may be devastating to the patient.

Infection following lumbar puncture is most uncommon, and I have seen only one. That was an epidural abscess which is a surgical emergency.

In the presence of a cerebral mass lesion, cerebral edema, or obstruction to the normal flow of cerebrospinal fluid, lumbar puncture may lead to a marked worsening of the patient's condition. This may come on immediately, or up to 24 hours after the lumbar puncture. The deterioration is usually associated with either uncal or tonsillar herniation. Uncal herniation is more common with temporal lobe masses and other supratentorial lesions; tonsillar herniation is more common with posterior fossa lesions; both tonsillar and uncal herniation may result in the development of mid-brain hemorrhage; the grave danger of acute tonsillar herniation is medullary compression. In general, the more acute the clinical history, the greater the risk of the lumbar puncture, but the complications do occur in what are apparently chronic processes.

The situations in which one should very cautiously consider the risks of LP are: (1) acute, i.e., less than a week, clinical history; (2) evidence of pressure on skull films; (3) papilledema; (4) slow pulse; (5) history suggestive of brain abscess or cerebellar mass; (6) the suspicion of intracranial mass or trauma in the elderly, because they often do not show papilledema although the pressure is high. There is no such thing as a "routine LP"; before doing any LP, one should be sure that there is a good chance of finding clinically *USEFUL* information which will influence the *CLINICAL* diagnostic work-up or therapeutic course. For example,



in the usual acute head injury there is little or no advantage in knowing whether the CSF is bloody or the pressure is high—the treatment is unchanged by this information. If for a particular patient there is any question about the above points, the course of wisdom is *NOT* to do the LP, but request neurosurgical advice. THERE IS NO SUCH THING AS A LUMBAR PUNCTURE SO URGENT THAT IT MUST BE DONE BEFORE OBTAINING A BRIEF HISTORY, OBTAINING SKULL FILMS, EXAMINING THE OPTIC FUNDI, OR COUNTING THE PULSE. It may be argued by some, in a specific instance in which herniation has occurred after LP, that in the natural history of the basic lesion, herniation develops. Although this is true, a general and massive experience illustrates that herniation is hastened and made more profound by LP. *We do not excuse murder on the basis that man is mortal.*

In cases of spinal block, particularly in spinal cord tumors, lumbar puncture may lead to a rapid deterioration of the clinical course. This may result from a change of the CSF dynamics, from a change in vascular dynamics, or from actual movement of the tumor. The most common problem resulting from lumbar puncture in the case of spinal block is that the subarachnoid space below the block may be collapsed and not refill. This means that an LP for myelography later may be impossible, and one must then resort to cisternal puncture. Lumbar puncture should not be done in cases of strongly suspected spinal cord tumor except at the time of myelography and when one is prepared to go directly to surgery if a complete block is found.

#### CISTERNAL PUNCTURE

All the possible complications of lumbar puncture apply equally to cisternal puncture. In addition, there is the danger of the needle passing into the medulla, and in cases of tonsillar herniation, there is the danger not only of inserting the needle into the tonsil, but also of causing damage to the inferiorly displaced posterior inferior cerebellar artery. Fortunately, I have seen none of these complications, because cisternal puncture is rarely needed.

#### MYELOGRAPHY

The risks of myelography are essentially the same as those discussed under lumbar puncture. Where there is spinal block, one must be prepared to go directly ahead with surgery.

#### PNEUMOENCEPHALOGRAPHY

Pneumoencephalography, of course, portends all the risks of LP, and in conditions of increased intracranial pressure, there is a marked risk of herniation. In the

neurological literature, there are many reports of the safety of the PEG with increased pressure, and it is true that in the majority of the time this is safe. However, complications do occur, and are catastrophic when they do. I have seen this happen on five occasions; fortunately, in each of these, burr holes were present and the condition was relieved immediately by ventricular puncture.

Pneumoencephalography (or any intracranial air study) has an additional risk in degenerative diseases of the CNS even in the absence of increased pressure. Particularly in cerebral degenerative processes, it is often seen that the patient's clinical condition will deteriorate markedly after air study. The cause of this is not known.

#### VENTRICULOGRAPHY

Of all the specialized neurologic diagnostic procedures, including lumbar puncture, ventriculography is by far the safest. When burr holes are necessary, as is usually the case with adults, there is the usual risk of infection. Subdural hematomas as a result of the burr holes are reported, and I have seen one. The most serious risk is that of passing the ventricular needle into a highly vascular tumor, such as a meningioma. Occasionally the resultant bleeding is so severe that even immediate surgery is not successful. The most common complication of ventriculography is a transient homonymous hemianopia due to passage of the needle through the occipital cortex. Ordinarily this clears spontaneously within 5-6 days. In the presence of a tumor or CSF block, it is wise to follow the ventriculogram with surgery, because cerebral swelling often increases after the irritation of air.

Transcoronal ventriculography, as can be performed in infants, also carries theoretically the risks noted above, but I have seen no complication of this procedure.

#### SUMMARY

Although there is a significant incidence of complications with almost every one of the above procedures, there are still benefits to be obtained from them which often far outweigh the risks. But it is essential to be aware of the risks and to be prepared to cope with them. The most important thing to be learned from this discussion is that lumbar puncture is not always an innocuous procedure, and it should never be considered "routine." It should be performed only after a history, at least visualization of the fundi and palpation of the pulse, and examination of skull films. It is impossible to justify LP otherwise.

# Heat Illness and Related Problems\*

A. W. El Halawani MD, Saudi Arabia, World Health Organization, WHO Chronicle, 18(8): 288-298, August 1964

## SOME UNRESOLVED PROBLEMS

The boundaries of environmental physiology are still hardly visible, so it is not difficult to make suggestions for further research. An international committee has listed about forty possible projects, many of which would fit appropriately into the International Biological Programme proposed by the International Council of Scientific Unions. The time has clearly come to consider man's adaptation to natural rather than artificial environments, and field studies would be both appropriate and welcome. Immense opportunities appear to exist in the Mecca Pilgrimage for resolving some outstanding problems. For example, the pathogenesis of prickly heat and of anhidrotic heat exhaustion is still something of a vexed question; and, although possibly of profound importance, the pathogenesis of heat stroke remains obscure.

One major question which has been asked repeatedly about heat stroke and is still unanswered is whether cessation of sweating precedes or follows hyperpyrexia. As one of the most urgent of medical emergencies, the immediate treatment of this disorder has priority over investigations. It is usually a catastrophe of sudden and unheralded onset, and its earliest stages are seen rarely or not recognized. A high mortality even with effective cooling rules out experimental induction of the disorder in man. These are at least some of the reasons why we have no clear picture of the pathogenesis of heat stroke. A second major point which remains unanswered is what degree or duration of hyperthermia causes irreversible damage to the central nervous system. But there are many questions and few answers in this enigmatic disorder; the questions are stimulating, but to the physician the lack of answers is disheartening. Heat stroke is apparently unique. Hyperpyrexia is not uncommonly a terminal event in general medicine, but what are the essential differences between heat stroke and the moments of hyperpyrexia which occur occasionally in the major fevers? Does heat stroke represent a sudden adrenal insufficiency or failure in the face of severe and sustained thermal stress? It is interesting that, unless

heralded by a sudden and clear-cut deterioration late in the course of heat stroke, the advent of adrenal insufficiency would be hard to recognize: hyperpyrexia, petechial and ecchymotic haemorrhages, cyanosis, and shock are features common to adrenal apoplexy and heat stroke. Of the problems that have been listed, there are clues only to one: the cessation of sweating.

Absence of sweating is called anhidrosis. The term is used to imply a partial or complete failure either of the production of sweat or of its delivery to the skin surface. It has been found clinically convenient to describe as anhidrotic an individual whose skin is dry when those around him can be seen to sweat profusely, or a patch of skin that is dry when the rest of the body surface is damp with sweat. Dryness of the skin in a hot and dry climate may mean that anhidrosis is present, or simply that sweat is being evaporated almost as fast as it is being delivered to the skin surface. In anhidrotic heat exhaustion there is interference with the delivery of sweat to the skin surface, but it has long been believed that in heat stroke there is mainly a failure to produce sweat.

A decline in thermal sweating measured by changes in nude body weight has been observed frequently in experimental subjects after an hour or two in a high environmental temperature or during more prolonged exposure to humid heat. For want of a specific title, the phenomenon has been called fatigue of the sweating mechanism, and it is known to be independent of water depletion. It is possibly significant that in addition to the decline in sweating, the usual stimulation of eccrine sweating by locally injected acetylcholine (or analogues such as pilocarpine and carbachol) is impaired, for it is on record that the anhidrosis of heat stroke does not respond to pilocarpine; however, anhidrosis resulting from interference with the delivery of sweat also fails to respond to these drugs. According to one experienced worker, the so-called fatigue of sweating may be explained as follows: the amount of sweat produced per unit rise in body temperature declines exponentially as the body temperature rises, so that the total sweat production ceases to rise with increased body temperature at a rectal temperature of about 38.5° C (101.3° F), and thereafter further increases in body temperature result in less sweat being produced, until at about

\* Continued from Occupational Medicine Section of U.S. Navy Medical News Letter, 44(10): 14-18, Nov. 27, 1964. This is the second installment.

40.5° C (104.9° F), if the same process were to continue, sweating would cease. This implies a physiological mechanism for the anhidrosis in at least some cases of heat stroke, but the occasional absence of sweating observed at rectal temperatures below 38.9° C (102° F), the recent report of sweating in an otherwise classical case of heat stroke, and the comparative rarity of heat stroke all suggest, however, that this relationship between anhidrosis and hyperpyrexia is by no means the only one, nor need it necessarily occur.

There are two alternative lines of approach. It has long been considered that the anhidrosis of heat stroke might be due to a failure of innervation of the sweat glands due to dysfunction of the hypothalamic centre for heat dissipation or of the "neuroeffector" junction at the periphery. Post-mortem examination of fatal cases of heat stroke has so far shown nothing which might have initiated either anhidrosis or hyperpyrexia; the changes seen in the hypothalamus, as elsewhere, appear to be a result rather than the cause of the disorder. Failure to demonstrate histological abnormalities in post-mortem sections does not, however, exclude the presence of a functional lesion in life. The second alternative is that in some cases the anhidrosis of heat stroke might be due, as in anhidrotic heat exhaustion, to interference with the delivery of sweat to the skin surface. When the skin is 100% wetted with hypotonic sweat, water is reabsorbed and collects in its upper layers; and it has been suggested that part reabsorption of sweat in this way may lead to obstruction of sweat ducts, and account for the onset of "fatigue" of sweating in humid heat. If this is true and at all relevant to the pathogenesis of heat stroke, it would seem to imply that anhidrosis may precede hyperpyrexia in humid climates.

Worthy perhaps of more immediate attention than other existing theories about the anhidrosis of heat stroke is the recent report from Israel of sweating in the presence of hyperpyrexia and coma. Regardless of the semantic and more significant arguments that can and no doubt will be marshalled against this report, it must serve as a sharp reminder that the term "anhidrosis" is often abused. The "hot dry skin" of heat stroke is in all the textbooks; how many physicians see and report what they have been told to see? How often is the significance of a hot dry skin questioned in a hot dry climate? The facts appear to be that not since

1932 has there been a report on the effect of pilocarpine on the anhidrosis of heat stroke; a starch and iodine or similar test for moisture on the skin has not been employed in this disorder; the measurement of evaporative fluid losses by changes in nude body weight has not been used either to establish the presence or absence of sweating in heat stroke at the time of crisis, or to determine the stage in recovery at which sweating returns. These may seem astonishing admissions, but only to those who have never shared in the dramatic urgency of treatment.

Another large gap in our knowledge of human responses to heat concerns the potassium balance. A rise in the plasma potassium level following oral intake of potassium chloride has been shown to be twice as great in Europeans and Indians in Madras as in Europeans in Europe; and the significance of this observation is not yet clear. The ratio of sodium to potassium in the thermal sweat of unacclimatized individuals is at least 6 : 1, and in a state of normal fluid and electrolyte balance sweat is always hypotonic to plasma in regard to these cations. Potassium losses in sweat would appear therefore to be of no importance; however, as a result of adaptations to fluid and sodium losses in prolonged sweating, sodium may virtually disappear from both urine and sweat while the potassium level in both remains about the same and may increase. According to some authorities, the potassium concentration in the sweat in such circumstances may be higher than in the plasma. Daily potassium losses by this route in men working for eight hours daily in hot surroundings may therefore be significant, for example, and comparable to losses in chronic diarrhoea. It has been suggested, and reasonably so, that potassium depletion is entirely consistent with some of the features of the heat disorders, notably weakness and lethargy and Pitressin-resistant polyuria. The plasma potassium level in salt-depletion heat exhaustion is usually within normal limits, but the use of an isotope-dilution method to estimate total exchangeable potassium in this disorder might provide very interesting results. Similarly, the hypokalaemia typical of heat stroke is probably related to acid-base disturbance resulting from hyperpnoea and respiratory alkalosis, but it would be valuable to have this assumption validated.

(To be continued)

## FROM THE NOTE BOOK

### NEW COBALT 60 UNIT AT PORTSMOUTH, VIRGINIA

A new Cobalt 60 Therapy Unit was dedicated at the U.S. Naval Hospital, Portsmouth, Virginia, on 18

November 1964 by RADM Edward C. Kenney, Surgeon General of the Navy. The new unit is a welcome addition to the modern radiology facilities at this hospital. This is the fifth cobalt unit to be installed in U.S. Naval Hospitals and will be available for treat-



ment of personnel of all branches of the armed services and their dependents.

The new unit was installed in Building 1 taking advantage of the architectural plan for this, the oldest Naval Hospital building in the United States Navy. It requires considerably more shielding than the conventional X-ray equipment and found an ideal home in the granite walls of this building which was originally planned and built approximately thirty years before the Civil War. In studying the available sites for the Cobalt Unit, physicists found that the granite block walls provided ideal shielding and the additional changes required were appropriate barriers to redivide the space and to fill in several windows.

When a patient is under treatment the cobalt therapy room door is closed and the entire surrounding area is radiation safe. The doctor and a qualified technician manipulate the control panel from an adjacent room and watch the patient through a lead glass window and converse with him through a sensitive intercom system. —Submitted by CAPT John W. Albright, MC, USN, Acting Commanding Officer, USNH, Portsmouth, Va.

#### SECNAV HONORS TWO NAVY DOCTORS

The Secretary of the Navy, the Honorable Paul H. Nitze, has presented the Navy Commendation Medal to LCDR Gerald J. McClard, MC USN and to Lt Homer L. Dixon, MC USNR for service as set forth in the following CITATION:

"For meritorious achievement on 26 June 1964 as crew members of an LC-130F aircraft during an emergency flight from Christchurch, New Zealand to McMurdo Station, Antarctica, resulting in the lifesaving evacuation of a critically injured shipmate. Your conduct throughout this unusually extended and extremely hazardous flight to and from the Antarctic Continent was in keeping with the highest traditions of the naval service."

#### CORRESPONDENCE COURSE IN HEMATOLOGY NOW AVAILABLE

"The Medical Department Correspondence Course 'Hematology,' NavPers 10501, is now ready for distribution to eligible regular and reserve officer and enlisted personnel of the Armed Forces. Applications for this course should be submitted on Form NavPers 992 (with appropriate change in the 'To' line), and forwarded via appropriate official channels to the Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland 20014.

"The purpose of this course is to provide a concise guide to hematologic procedures. Included are elements, origins, and functions of blood and methods for conducting diverse hematologic tests. Allied courses in Clinical Laboratory Procedures are under development and will be available in the near future.

"The course is composed of two (2) objective-type

assignments and is evaluated at four (4) Naval Reserve promotion and/or non-disability retirement points. These points are creditable only to personnel eligible to receive them under current directives governing retirement and/or promotion of Naval Reserve personnel. Individuals who have previously completed course 'Clinical Laboratory Procedures,' NavPers 10994, will receive additional credit for completing this course." —From CAPT R. F. Dobbins, Acting CO, U.S. Naval Medical School, NNMC, Bethesda, Md.

#### AMERICAN BOARD CERTIFICATIONS

*American Board of Anesthesiology*

LT Louis B. Swisher Jr MC USN

*American Board of Dermatology*

LCDR Jerome Levy MC USN

*American Board of Pathology*

CDR Calvin F. Bishop MC USN

LCDR Martin J. Valaske MC USN

LT Robert C. Block MC USN

*American Board of Preventive Medicine (Aviation Medicine)*

CDR Channing L. Ewing MC USN

*American Board of Surgery*

LCDR Thomas R. Mainzer MC USN

#### NAVY DOCTOR GETS ARMY MEDAL

USS TICONDEROGA (CVA-14) AT SEA, Nov. 15 —LCDR Walter D. Gable, Medical Corps, U.S. Navy, was awarded the Army Commendation Medal aboard this attack aircraft carrier while the ship was moored at Hong Kong, BCC, Nov. 13.

CAPT Damon W. Cooper, commanding officer of Ticonderoga, presented LCDR Gable with the medal in ceremonies in Ticonderoga's hangar bay.

LCDR Gable was awarded the medal through Stephen Aile, Secretary of the Army, for meritorious service while serving as a pathologist and flight surgeon with the Aerospace Branch, Military Environmental Pathology Division, Armed Forces Institute of Pathology, Washington, D.C., from Oct. 1961 to May 1964.

A commendation letter accompanying the medal states, in part: "... Commander Gable's informative and comprehensive studies on the cause of death in aeroplane accidents contributed in a great measure to the field of aviation safety,

"... he rendered exceptional service to the advancement of aviation pathology by devoting his time and efforts in the training and education of both American and foreign medical officers in aviation pathology.

"Commander Gable's outstanding performance of duty throughout this period reflects the utmost credit upon himself, the United States Navy, and the military service."

A unit of the powerful U. S. Seventh Fleet, Ticonderoga is homeported in San Diego, Calif.

—Tico News Release No. 2-1164, November 15, 1964.

## PAN AMERICAN ASSOCIATION OF OPHTHALMOLOGY TO MEET IN RIO DE JANEIRO IN 1965

The Pan American Association of Ophthalmology will hold an interim Congress in Rio de Janeiro, Brazil, from August 15 to August 21, 1965. Headquarters for this important meeting will be the famous Copacabana Palace Hotel on the Copacabana Beach.

An interesting professional program of panel discussions and free papers is being arranged by Professor Werther Duque Estrada, University of the State of Guanabara, Rio de Janeiro, Brazil. As usual the social events will be outstanding. Special round-trip jet air fares have been arranged through Doctor Louis Girard, The Department of Ophthalmology, Baylor University, Houston, Texas.

—From J. H. King, Jr., MD FACS, Chairman, Public Relations Committee, PAAO, 110 Irving St., N. W., Washington D. C. 20010.

## MEDICAL SUPPORT FOR STEEL PIKE I RECEIVES HIGH PRAISE FROM ADM MCCAIN, GEN BERKELEY AND ADM KENNEY

The Surgeon General wishes to take this opportunity

to commend those activities that recently provided medical support for operation "Steel Pike I". Operation Steel Pike was a large scale naval-marine and amphibious exercise recently conducted in Spain. The cooperation and dedication to duty of those surgical teams, casualty evacuation teams and augmentees who supported this operation have resulted in sincere recognition that the Medical Department is meeting our primary obligation, namely that of supporting the operating forces.

The following excerpt from a message from CTF One-Eight-Four and CTF One-Eight-Seven testifies to the high quality of your services. "As our Westward Transit brings an end to this eminently successful exercise we cannot emphasize enough the splendid contribution the surgical teams, casualty evacuation team, and wing augmentation surgeons made to this success. Your efforts were essential to provide the medical support required. You responded to each medical emergency with professional skill and confidence. Your accomplishments have earned the respect and confidence of all hands. Our personal thanks for a job well done. S/Vice Admiral John S. McCain, Jr. USN, LTGEN J. P. Berkeley, USMC."

## DENTAL



## SECTION

### PULPAL RELATIONS TO ACTIVE AND ARRESTED DENTINAL CARIES

*M. Massler and R. Kuwabara, Univ of Ill., Jour Dental Res 43(5) Part II: 807-808, Sept-Oct 1964.*

Pulpal reactions to caries were correlated clinically and histologically in three replicate series totaling 175 human teeth. Caries progress is intermittent. Periods of activity could be distinguished clinically by pain reactions, a necrotic bacteria-laden surface layer, and a painful, softened, relatively bacteria-free subsurface layer. Arrested lesions showed a nonpainful, heavily pigmented, hard, leathery or sclerosed surface. Histologically, the active lesions showed a wide decalcified layer of dentin which was highly permeable to dyes and isotopes, while the arrested lesions showed a wide zone of pigmented, sclerotic, and impermeable dentin. Sclerosis of dentin and reparative dentin formation began early, toward the end of the active period, and continued more slowly during the early period of arrest. Arrest lines were prominent in the reparative dentin, as were marked differences in structure within successive layers

of the reparative dentin. The layers and arrest lines probably reflect periods of caries activity and arrest. Effects on odontoblasts and subodontoblastic cells were relatively mild until the necrotic layer came within 30 microns of the pulp. Pulpal inflammations were conspicuously absent under superficial and shallow lesions in spite of clinical symptoms, relatively mild under moderately deep lesions and prominent only under very deep active lesions. When compared to the effects of various cutting procedures, filling materials, and medications, the pulpal reactions to the caries attack were much more productive of dentinal sclerosis in advance of the lesion and in reparative dentin formation in the pulp.

### AN EVALUATION OF THE DRUGS USED FOR GINGIVAL RETRACTION \*

*Felix F. Woycheshin DDS, Univ of Texas Dental Branch, Houston, Texas, Jour Pros Den 14(4): 769-776, July-Aug 1964.*

The elastic impression materials such as the hydrocolloids and the rubber base impression materials, used

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in the construction of inlays, crowns, and bridges, do not displace the gingival tissues and necessitate gingival retraction to expose the gingival margins of the cavity preparations. Various methods of gingival retraction have been described in the literature. The most conservative and widely used method consists of placing a cotton cord or cotton fibers which have been impregnated with a drug into the gingival crevice; another method is that of placing a cord and then applying the drug. These cords and drugs are left in the gingival crevice for varying lengths of time, depending upon the drug used and the condition of the gingival tissues.

Various drugs have been used for gingival retraction, but no comparative study of the efficiency or undesirable characteristics of the drugs has been reported in the literature. This is a report of such a study, using dogs as the experimental subjects. The study was done in two parts. The first part was concerned with the relative ability of the drugs to retract the gingival tissues and local tissue injury, and the second part was concerned with systemic reactions.

#### Summary

1. Most of the drugs commonly used for gingival retraction are effective in shrinking the gingival tissues.
2. Zinc chloride is caustic and prolonged application or high concentrations will cauterize the tissue.
3. Negatan is highly acid and decalcifies the teeth.
4. When very high concentrations or large amounts of epinephrine are applied locally to lacerated tissue, epinephrine can be absorbed and cause an increase in the heart rate and blood pressure, which could be dangerous for patients with cardiovascular disease, hyperthyroidism, and to certain hypersensitive individuals.
5. The application of high concentrations of epinephrine to large areas of lacerated or abraded gingival tissues should be avoided.

#### TRENDS IN DENTAL MATERIALS \*

Phillips, Ralph W., *Indiana Univ School of Den, Indianapolis, Indiana, Jour Am Den Hyg Assoc*, 38: 127-131, July 1964. *Dental Abstracts* 9(10): 631, October 1964.

No dental restorative material adheres to tooth structure, but the search for a metal or plastic that will bond chemically to the tooth continues unabated. Until such an adhesive cement or restorative is developed, concern must be given to technics that tend to minimize the leakage associated with existing materials.

Probably the reason amalgam has served so effectively as a restorative material through 200 years is not any unique germicidal or antibacterial characteristic of this material but rather because of the tendency of amalgam, as it ages in the mouth, to inhibit leakage of deleterious agents. Amalgam that is six months old resists leakage better than amalgam two days old. The reduced leakage probably is due to an accumulation of various substances, corrosion products that mechanically fill the space between the restoration and the tooth, or little

crystals of tin that may grow from the surface of the amalgam into the space.

The desirable pulpal effects of zinc oxide-eugenol, although generally associated with its neutral pH, also may be associated with its tendency to adapt itself uniquely well to the cavity walls. The reduced leakage associated with this cement aids in minimizing further pulpal reactions.

A cavity varnish, painted onto the prepared cavity before insertion of the restoration, aids in reducing the initial leakage around the amalgam or silicate restoration. Likewise, the varnish minimizes the possible penetration of acid into dentin from a zinc phosphate or a silicate cement. Such protection is essential in the deep cavity where the thin layer of remaining dentin may not be adequate to protect against permeability of acid.

The unique anticariogenic behavior of the silicate restoration is now established. Although this restoration is soluble and leaks grossly, recurrent caries is seldom seen around it because of the high fluoride content in the silicate powder. When the silicate restoration is inserted, the fluoride in the cement reacts with the adjoining enamel and dentin in a manner similar to that of topical application of fluoride to the enamel surface. Some of the newer resin materials incorporate 2 per cent sodium fluoride in the polymer for the same reason.

The importance of polishing the amalgam restoration has received further documentation. The polished amalgam surface is more resistant to tarnish and corrosion than the carved surface. It is desirable to wait a week before polishing the surface of an amalgam restoration, and the surface should be repolished at each prophylaxis. Polishing must be done with care to avoid generating any heat; dry powders should not be used.

#### THE LANGUAGE OF RADIOLOGY \*

Etter, Lewis E., *School of Medicine, Univ of Pittsburgh, Pittsburgh, Pa., Am Jour Roentg* 90: 656-658, Sept 1964. *Dental Abstracts* 9(10): 657-658, Oct 1964.

Since 1912 the Committee on Nomenclature of the American Roentgen Ray Society has concerned itself with the terminology used in conjunction with the application of roentgen rays. Of the terms recommended by the committee, the following are in most common usage:

- roentgen: to be pronounced rentgen
- roentgen ray: a ray discovered and described by Wilhelm Konrad Röntgen
- roentgenology: a study and practice of the roentgen rays as applied to medical science
- roentgenologist: one skilled in roentgenology
- roentgenogram: the shadow picture produced by the roentgen ray on a sensitized plate or film
- roentgenograph (ver): to make a roentgenogram

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With the increasing use of radium and later of various radioactive isotopes, both for diagnosis and treatment, the prefix of radio- was substituted for the prefix of roentgeno- in the foregoing nomenclature, to make a clear distinction between the two types of energizing sources. Thus a roentgenogram represents the shadow picture produced by the roentgen ray on a sensitized film, and a radiogram represents the shadow picture produced by a radioactive source (cobalt 60, cesium 137, ytterbium 169, and so forth) on a sensitized film. In a similar sense the term autoradiograph is reserved for use in connection with radioactive isotopes.

The term radiology is most comprehensive, including diagnostic radiology (roentgen ray diagnosis and diagnostic radioisotopes), and therapeutic radiology (the application of all types of ionizing radiations in therapy).

## PERSONNEL AND PROFESSIONAL NOTES

*Dental Training Committee.* The Dental Training Committee will meet in the Bureau of Medicine & Surgery in late February 1965 to consider applications from qualified dental officers for advanced training. Requests will be evaluated for assignment to the Graduate and Postgraduate Courses at the U. S. Naval Dental School, Graduate level courses in civilian institutions, American Dental Association approved residencies at Naval Facilities, and to the Postdoctoral Fellowship Training Program. In the Graduate and Postgraduate Courses at the U. S. Naval Dental School, it is planned that officers shall be assigned in the following numbers: General Dentistry—14; Oral Surgery—4; Prosthodontics—4, Periodontics—4; Oral Medicine—1; and Endodontics—1. At other Naval facilities and civilian institutions, it is estimated that officers will be assigned as follows for specialty training: Oral Surgery—8; Prosthodontics—6; Periodontics—8; Endodontics—2; and Public Health/Preventive Dentistry—1. It is not possible at this time to predict the numbers who will be assigned to Postdoctoral Fellowship Training (BuMed News Letter, 44(3): 25, 1964).

*Dental School Hosts Foreign Dentists.* CAPT A. R. Fréchette DC USN, Commanding Officer, U. S. Naval Dental School, NNMC, Bethesda, Maryland, hosted distinguished dental officers of the British Armed Forces and the Argentine Navy on 18 November 1964.

Those visiting the Dental School were: Vice Air Marshall H. Kegg, CBE, QHDS, LDS, RAF, Director of Dental Services of the British Royal Air Force; Brigadier General D. V. Taylor, CBE, Consulting Dental Surgeon to the British Army; Surgeon Captain (D) A. MacDonald-Watson, OBE, RN, Senior Consultant in Dental Surgery, British Royal Navy, and Captain Guido Mercurio, Dentist in the Argentine Navy.

*Naval Dental Officers Lecture on Dental Office Emergencies.* CAPT S. E. Tande, DC USN, Head, Audio-visual Department, U. S. Naval Dental School, National

Laminagrams are prepared by laminagraphy, planigrams by planigraphy, stratigrams by stratigraphy and tomograms by tomography.

The radiologist should not fall into the jargon used by lay associates, such as, "What do the patient's x rays show?" "Take another set of x rays," or "Make some more films."

The correct terms are: "The films reveal" or "The films show," "Expose films to roentgen rays" and "Get additional exposures."

When all exposures have been made and the films are to be prepared for interpretation, are they developed or processed? Of course, more is entailed in "processing" than simply "developing," which is only the initial stage requiring a further water rinse before "fixing" and "clearing."

Naval Medical Center, Bethesda, Maryland, and LCDR J. S. Lindsay, DC USN, Resident in the Oral Surgery Department, lectured at the Fall meeting of the Old Dominion Study Club of Virginia, held in October. CAPT Tande presented the preventive phase of *Emergencies in the Dental Office* and LCDR Lindsay presented the treatment phase. Later in the program, the Study Club members participated in a demonstration of mouth-to-mouth resuscitation and closed cardiac massage, utilizing the training manikin, "Resusci-Anne."

*Captain Ludwick Presents Essay Before Reserve Dental Companies.* CAPT William E. Ludwick, DC USN, U. S. Naval Training Center, Great Lakes, Illinois, presented an essay entitled *Prevention of Dental Caries* before the U. S. Naval Reserve Dental Companies 9-3 and 9-5 on 20 November 1964 at the Naval Armory, Chicago, Illinois.

*Captain Gunther Presents Lecture in Japan.* CAPT Lewis L. Gunther, DC USN, U. S. Naval Dental Clinic, Yokosuka, Japan, presented a lecture entitled *Periodontics for the General Practitioner* before the fall meeting of the American Stomatological Society of Japan on 9 November 1964 at the U. S. Naval Air Station, Atsugi, Japan.

*Captain Losee Participates in Science Symposium.* CAPT Fred L. Losee, DC USN, U. S. Naval Training Center, Great Lakes, Illinois, participated in one of the two symposiums sponsored by the American Association for the Advancement of Science during the annual meeting held in Montreal, Canada 26-31 December 1964.

The symposium on *Environmental Variables in Oral Disease* was held 26-27 December in which CAPT Losee presented a review of studies indicating that trace amounts of elements other than fluorine in food and soil water appear to have a marked effect on caries incidence.

*List of Newly Standardized Items Available for Issue*

FSN	NOMENCLATURE	UNIT ISSUE	UNIT PRICE
6505-074-3171	Iodine and Zinc Iodide Glycerite, 2 oz	BT	1.40
6510-074-1020	Strip, Oxidized, Cellulose, 1/2" x 2",	BX	4.70
6515-985-7106	Syringe, Cartridge, Aspirating, Thumb Ring Handle, Dental	EA	2.40
6520-076-8682	Bur, Denture Trimming, Steel, 6s	PG	3.70
6520-720-9499	Band, Copper, Dental, Size 16, 25s	BX	.25
6520-721-6057	Band, Copper, Dental, Size 13, 25s	BX	.25
6520-890-1565	Brush, Polishing, Dental Handpiece, Natural Bristle, 24s	PG	.87
6520-890-1778	Handle, Dental Instrument Point, Chuck Type	EA	1.60
6520-890-1779	Scaler Point, Dental Morse, No. 2, 6s	PG	1.10
6520-890-1780	Scaler Point, Dental Morse-Jaquette, No. 3, 6s	PG	1.40
6520-890-1781	Scaler Point, Dental Morse-Jaquette, No. 4, 6s	PG	1.40
6520-890-1782	Scaler Point, Dental Morse-Jaquette, No. 5, 6s	PG	1.40
6520-890-1783	Scaler Point, Dental Morse, No. 6, 6s	PG	1.40
6520-890-1784	Scaler Point, Dental Morse, No. 7, 6s	PG	1.40
6520-965-0000	Wheel, Abrasive Diamond, Friction Grip, AHP, Rounded Edge, Ultra Speed, 0.160 by 0.050 Inches	EA	.89
6520-965-0001	Wheel, Abrasive Diamond, Friction Grip, AHP, Flat Edge, Ultra Speed, 0.252 by 0.015 Inches (Safe Side of Wheel on Top)	EA	1.00
6520-965-0002	Wheel, Abrasive Diamond, Friction Grip, AHP, Flat Edge, Ultra Speed, 0.252 by 0.015 Inches (Safe Side of Wheel on Bottom)	EA	1.00
6520-965-0003	Wheel Abrasive Diamond, Friction Grip, AHP, Ball, Ultra Speed, 0.045 Inch Diameter	EA	.59
6520-965-0014	Wheel, Abrasive Diamond, Friction Grip, AHP, Tapered Cylinder, Ultra Speed, 0.060 by 0.325 Inches	EA	.67
6520-965-0015	Wheel, Abrasive Diamond, Friction Grip, AHP, Tapered Cylinder, Ultra Speed, 0.065 by 0.383 Inches	EA	.70
6520-982-9377	Cup, Polishing, Dental Handpiece, Rubber, 24s	PG	.74
6520-985-7251	Band, Copper, Dental, Size 15, 25s	BX	.25

## OCCUPATIONAL MEDICINE

### Large Accident Toll Among Men at the Working Ages

*Statistical Bulletin, Metropolitan Life Insurance Co., 45: 1-3, July 1964.*

Accidents are responsible for a heavy toll of life annually among the men who constitute the major segment of the nation's labor force and the large majority of its family heads. It is estimated that about 45,000 men in the age range 15-64 years died of accidental injuries in the United States during 1963, compared with about 42,600 in 1962. The death rate from this cause rose from 79 to 82 per 100,000.

It is significant that only a relatively small proportion of the fatal accidents among men at the main working ages—about a fifth—arise out of and in the course of employment. In recognition of this fact, the President's

Conference on Occupational Safety, which held its ninth biennial meeting in Washington, D. C. a few weeks ago, devoted an entire session to the problem of off-the-job safety. Accidents are a much greater menace to the lives of adolescent and young men than any other cause. At ages 15-24, accidental injuries take considerably more lives than all other causes of death together, and account for more than three times the combined toll from cancer, homicide, and suicide—the causes which rank next in order. Among males at ages 25-34, accidents still outrank by a wide margin every other cause of death. In the next decade of life they

are in second place, and even at ages 45-64 are exceeded only by the cardiovascular diseases and cancer.

As Table 1 shows, motor vehicles are the major source of fatal accidents throughout the main working ages, accounting for more than half the total accident mortality among males at ages 15-64 combined. At ages 20-24, motor vehicle accidents are responsible for

70 percent of the total, and at none of the other age groups under review does the proportion fall below 40 percent. Occupants of cars—drivers and passengers—constitute the large majority of victims throughout the working ages; even among men at 55-64 years, occupants account for three fourths of those fatally injured by motor vehicles.

TABLE 1—MORTALITY FROM SPECIFIED TYPES OF ACCIDENTS  
AMONG MALES, AGES 15 TO 64  
United States, 1961-62

Age Period (Years)	Average Annual Death Rate Per 100,000									
	: Accidents Total :	: Motor Vehicles :	Falls :	: Drownings* :	Fire and Explosion :	: Machinery :	Firearm :	Aircraft :	All Other :	
15-64 .....	77.7	40.6	6.2	4.6	4.0	2.8	2.6	2.2	14.7	
15-19 .....	77.0	49.5	1.6	10.1	.9	1.4	4.5	.5	8.5	
20-24 .....	106.3	73.9	2.4	6.3	2.3	2.1	3.3	3.3	12.7	
25-34 .....	71.4	40.3	2.7	3.6	3.2	2.2	2.3	3.9	13.2	
35-44 .....	65.2	30.8	5.1	3.2	4.0	2.7	1.9	2.8	14.7	
45-54 .....	75.9	31.5	9.1	3.4	5.8	3.6	2.3	1.4	18.8	
55-64 .....	88.5	35.8	16.4	3.5	6.7	4.1	2.2	.6	19.2	

\* Exclusive of deaths in water transportation.

Although falls rank second as a cause of accidental death, they account for only one twelfth of the total accident mortality among men 15-64 years of age. The death rate from this cause in 1961-62 rose without interruption from 1.6 per 100,000 males at ages 15-19 to 16.4 at 55-64 years. In the latter age group, falls constituted nearly one fifth of the total.

Drownings and fires each took a little over 5 percent of the total accident mortality among the men in this study. Next in order of importance were machinery, firearm, and aircraft accidents. The latter two types, as well as drownings, recorded their highest death rates under age 35; the two others showed a rising mortality with advance in age.

Accidents not only take a large number of lives but are also responsible for a heavy toll of nonfatal injuries among men at the main working ages. In the course of

a year, about 15 million men at ages 15-64 sustain injuries which cause restricted activity or require medical attention, according to data gathered through household interviews by the National Health Survey. Approximately one fifth of the injured men are confined to bed for at least a day.

It is evident from Table 2 that nearly half of the men at ages 15-24 are injured annually; the proportion is about 1 out of every 3 at 25-44 years and 1 out of every 4 at ages 45-64. The table also gives details on the relative frequency of the major types of accidental injury. Lacerations and abrasions, sprains and strains of various kinds, and contusions are the leading types among men in each age group. Such injuries constitute two thirds of the total sustained in the age range 15-64 years. Fractures and dislocations, and burns account for a majority of the other injuries.

TABLE 2—ESTIMATED ANNUAL FREQUENCY OF CURRENT INJURIES\* BY SPECIFIED TYPES  
MALES, AGES 15 TO 64. U.S. NATIONAL HEALTH SURVEY, JULY 1957-JUNE 1961

Type of Injury	Annual Number of Injuries Per 1,000 Men at Ages			
	15-64	15-24	25-44	45-64
All Injuries .....	329.0	461.1	319.5	259.9
Skull fractures and head injuries.....	11.6	21.3	11.2	†
Other fractures and dislocations.....	34.7	45.9	34.4	28.3
Sprains and strains of back.....	25.6	20.9	26.4	27.6
Other sprains and strains.....	47.9	82.4	39.8	36.9
Lacerations and abrasions.....	93.5	130.1	95.0	69.1
Contusions .....	54.1	84.9	50.5	39.8
Burns .....	14.5	22.0	13.5	11.2

\* Current injuries are those which have lasted less than 3 months, and which have required one or more days of restricted activity or medical attention.

† Too few cases in survey sample to yield reliable results.



## CONTACT DERMATITIS CAUSED BY SARAN WRAP

*Raymond A. Osbourn MD, Washington, D. C.,  
JAMA 188(13): 141, June 29, 1964.*

Recently, the use of thin plastic films as covering or occlusive dressings in therapy with ointments and creams, especially hydrocortisone derivatives, has been advocated for treatment of several dermatoses. This form of therapy is often very beneficial and is becoming increasingly popular.

Only a few complications have been reported from the use of such films. Among them were discomfort from perspiration under the film, a miliaria-like eruption, and folliculitis. Where hydrocortisone derivatives were used, atrophy has also been reported.

It is our purpose to report a rare complication, i.e., contact dermatitis, from the use of a film (Saran Wrap) itself.

*Report of a Case.* A 30-year-old white male consulted us on May 2, 1963, because of psoriasis involving his scalp, legs and arms. According to his medical history, he had had intermittent attacks of psoriasis for many years. He had been treated with aminopterin and cortisone preparations and had used Saran Wrap with local hydrocortisone and related steroid creams. Because an area of psoriasis on his right leg was well-localized, he was given a steroid cream containing triamcinolone, acetone, neomycin sulfate, gramicidin, and nystatin for local application and was told to cover the treated area with Saran Wrap for two- to three-hour periods every evening. He applied the same cream, without covering, to the other scattered areas on his arms and legs and he used a scalp lotion containing resorcinol monoacetate.

Over the next few weeks, the patient showed improvement of all skin lesions. However, on June 6 he returned with an inflamed, swollen, vesicular and exudative dermatitis on his right leg, rather sharply limited to the area covered by the Saran Wrap. The other skin areas on which the same triamcinolone preparation was used uncovered were not inflamed. He was advised to avoid the Saran Wrap, to use a colloidal aluminum acetate (Burow's) solution soak and apply a hydrocortisone-neomycin spray. The inflammation subsided uneventfully over the next few days.

A patch with a 1-cm square of Saran Wrap was applied to the flexor surface of his left forearm where the skin appeared essentially normal. In 48 hours, the test site showed redness and vesiculation. The patient had continued to use the same triamcinolone cream without difficulty on other skin areas. One week later he applied this same cream to the right leg where the Saran Wrap had been used but no reaction was produced.

*Comment.* Saran Wrap is a copolymer of vinylidene chloride and vinylchloride. Generally, it is considered to be relatively inert. The manufacturers advised that

they did not have a single positive reaction in all the skin testing which they did on Saran Wrap as it is commercially available, nor have they had any skin reactions reported to them over the years the product has been on the market.

There is a report of skin reactions to epoxy resins used as plasticizers and stabilizers in polyvinyl chloride films, but these substances, according to information received from the manufacturer, are not used in the Saran Wrap film. Furthermore, we have not been able to find in the literature any reference to reactions to the pure polyvinyl chloride or to the copolymer of it with vinylidene.

In view of the large amount of Saran Wrap in past and present daily use, it is obvious that skin sensitivity to it must indeed be rare. However, because the dermatitis in this patient was limited to the area of its application and because of the positive patch test reaction to the product itself, the possibility of skin reactions to Saran Wrap must be kept in mind when it is used as an occlusive dressing for therapy.

## CHROMIUM IN WELDING FUMES AS CAUSE OF ECZEMATOUS HAND ERUPTION

*Walter B. Shelley MD, Philadelphia, Pa., JAMA  
189(10): 170-171, September 7, 1964.*

Ecematous eruptions of the palms are a reaction pattern of highly diverse etiology. Commonly one may find the cause to be due to hypersensitivity to foods, drugs, or fungi. In some cases the hyperhidrotic response to psychic tension may be a critical determinant. In other instances the cause may elude detection unless the physician has a high index of suspicion for all environmental exposures, both contactant as well as inhalant. We have recently observed a chromium-sensitive patient in whom inhalation of acetylene welding fumes triggered a severe ecematous eruption of his palms.

*Report of a Case.* A 40-year-old healthy male crane operator gave us the history of having had a chronic ecematous eruption of both hands for 14 years. At the time of onset he had been employed in a factory where he worked with a linoleum paste. He had had repeated attacks of vesicular lesions on the palmar and dorsal surfaces of both hands. Innumerable local preparations had been tried without real success. One month before consulting us the eruption had become more severe and was spreading onto his arms and legs.

The patient was hospitalized. A complete blood count, blood urea nitrogen, fasting and postprandial blood sugar, and a serologic test for syphilis were entirely normal as was a urinalysis. A chest x-ray was normal. Nine scrapings for fungi were negative. Forty-eight hour patch tests, using 28 suspected substances, were performed on the patient. Of the 28, one substance, 0.25% potassium bichromate in aqueous

solution, caused development of a marked vesicular and erythematous reaction.

Systematic steroid and antibiotic therapy, Burow's solution compresses, and topical steroid cream led to marked improvement within a week. He was discharged with the diagnosis of eczematous contact dermatitis due to chromium hypersensitivity. Strong cautionary advice was given that he avoid direct contact with the following:

Chrome treated leather (shoes, hat bands, camera cases, belts)

Chromium-plated metal objects (faucets, car accessories)

Zippers

Zinc chromate paint

Cement

Antirust solutions

Cigarette lighters

Book matches

Blue prints

His course was reasonably satisfactory upon returning to work. However, two and a half months later he suddenly developed an explosive vesicular flare of his palms. Careful analysis of all of his activities for the preceding day revealed that he had walked by an acetylene welding operation where the fumes were especially strong and that he had had appreciable inhalation of these fumes. He was then able to recall prior sporadic flares of his hand eruption associated with casual exposure to acetylene welding fumes.

The palmar exacerbation persisted for several weeks despite steroid therapy. Now, however, with the added precaution of avoiding welding fumes, the patient has been able to keep his hands relatively clear of dermatitis.

*Comment.* Chromium is the major allergen of industry today. Its highly diverse and, at times, occult distribution explains the phenomenal persistence of the eruption in some individuals. Considered largely contactant it has recently been shown to be a hazard even in welding fumes. Thus, Fregert and Ovrup reported the case of a welder who experienced repeated episodes of contact dermatitis of the face. He was found to be sensitized to the chromium vaporized from the chromium welding rod with which he worked. Removal from his welding job led to a complete cure. Possibly, such a chrome sensitivity would explain the urticaria and asthma experienced by another patient whenever exposed to acetylene welding fumes.

Although industry has been fully cognizant of the varied chemical compositions of welding fumes, insufficient instruction has been given to the chrome-sensitive individual regarding the very real hazard of welding. Some welding rods contain as much as 18% chromium so that the circumbient environment of any welding operation becomes saturated with allergen. Work with chromium steel alloys is another obvious danger for the chrome-sensitized person.

Significantly in our patient, casual exposure to the fumes caused a severe flare of his dermatitis. The chromium is viewed in this instance as an inhalant allergen, but in closed shop operations one could readily see that all benches, tools, clothing, etc., would be impregnated with a chromium mist.

## PATCH TESTING

*George H. Kostant MD, New York, N. Y., Jour of Occupational Medicine, 6(9): 381-382, Sept 1964.*

Patch testing is a valuable tool in the diagnosis of allergic contact dermatitis when the indications and contraindications are properly understood, and when the tests are performed and interpreted correctly.

Approximately 80% of all cases of industrial contact dermatitis are caused by exposure to primary irritants such as soaps, detergents, alkalis, acids, certain solvents, greases, some petroleum products, paints, etc. These are substances which will affect all persons exposed when the intensity and duration of that exposure is sufficient. Patch testing with such substances is of no value and may even prove dangerous.

Patch testing should be used only to establish a diagnosis of allergic etiology when the location and morphology of the cutaneous process suggests a contact dermatitis. Patch testing is most valuable when the worker is the only one in a group of individuals who develops a contact dermatitis after exposure to a particular substance.

Patch testing should not be performed in the presence of an acute dermatitis but should be deferred until the acute process has subsided. Failure to delay patch testing may provoke an exacerbation of the dermatitis that may be more intense and of longer duration than the initial episode.

Because patch testing may itself produce sensitization in susceptible individuals, patients should not be tested with allergens which they have not already contacted, particularly if these are substances that they may encounter subsequently in the course of their daily life. Testing should be limited to substances with which they have had the kind of contact likely to produce the observed dermatitis. Wholesale testing with all possible allergens present in the work environment, regardless of the likelihood of contact with them by the worker involved is to be deplored. Obviously, even if a worker should prove to be sensitive to an allergen, it cannot be incriminated in the etiology of his contact dermatitis unless it can be shown that he actually came into contact with it.

Patch testing should not be performed as a prerequisite for employment since it does not satisfactorily indicate which workers are likely to become sensitized.

*Technic.* Patch tests are performed by placing a sample of the suspected allergen, usually in the state in which it is encountered in the course of the work exposure, so that it will remain in contact with a small area of normal skin for a 24- to 48-hour period. Rel-

atively nonhairy areas such as the volar surface of the forearm or the interscapular region of the back are preferred. The area selected for testing should not be shaved or pretreated in any way. As many as 18 or 20 individual patches may be applied simultaneously when the back is used.

In the case of liquids, a 1-cm. square of unglazed white cotton cloth or blotting paper is saturated with the suspected allergen. The moist square is applied to the skin and covered by a round piece of cellophane, 2-cm. in diameter which, in turn, is covered by a larger adhesive patch. Additional adhesive strips may be used to reinforce the adhesive patch when necessary.

When the suspected liquid allergen is a fat solvent or of such nature that it may be suspected of having a primary irritant action, it should be diluted with an equal part of either olive oil or light mineral oil before applying it to the patch. Water-soluble substances should be diluted with water to a concentration below that known to be primarily irritant. Tables of permissible concentrations are available in such texts as that of Schwartz et al.

Powdered substances are applied directly to the cotton or blotting paper square and then moistened with water. Fabrics, papers, plastic materials, and other solids may be applied directly to the skin and moistened with water. In both instances, the patch is covered by the occlusive cellophane-adhesive covering described above.

Patch tests are read in 24-48 hours. However, the patient should be cautioned to remove it promptly if he becomes aware of more than minimal itching, pain, or burning in the region of the patch. Failure to do so may result in ulceration and scarring.

The reaction is not read until about 15 min. after the patch is removed, to allow any transient effects of removal of the tape to disappear. The intensity of the reaction is graded according to the following 5-point scale: negative, no reaction; 1+, erythema; 2+, erythema and edema; 3+, erythema, edema, papules, and an occasional vesicle; and 4+, many vesicles which in some cases may cause denudation of the area of exposed skin.

A positive test confirms the sensitivity of the individual to that allergen, the intensity of the reaction reflecting the degree of the sensitivity. Assuming that his work involved exposure to it in such a manner that it could be the cause of his contact dermatitis, the positive test incriminates that allergen as the etiologic agent. Arrangements should then be made to protect him from all further contacts with this material by either removing it entirely from his work environment or instituting adequate measures to obviate his contact with it.

#### HAZARDS TO HEALTH: MIXTURES OF HOUSEHOLD CLEANING AGENTS

Harry C. Faigel MD, Boston Poison Information Center,

*New England Jour of Med*, p 618, Sept 17, 1964. *Environmental Health Letter*, 4(1), Oct 15, 1964.

Mixing household cleaners is a common practice among American housewives. Experimenting and unconscious of the fumes that some of these mixtures release, they hope that their own formulation will clean better than a single commercial product will. Some commercial cleaners are themselves mixtures of otherwise safe ingredients, until a homemade additive changes them into a toxic gas, usually chlorine or ammonia. Poisoning by mixtures of homemade cleaners is usually from inhalation of the reaction products. The incident often occurs in a poorly ventilated, closed space, and appears to happen more often in the winter when windows are closed and ventilation is minimal, and when rooms are heavily soiled. During a period of 60 days in the winter of 1963, 45 calls were received at the Boston Poison Information Center regarding adult poisonings. Four of these were for inhalation of gases produced by homemade cleaning mixtures. The most common combinations used are mixtures of sodium hypochlorite and ammonia or vinegar. Sodium hypochlorite and vinegar react and produce large volumes of chlorine gas. When sodium hypochlorite is mixed with ammonia large volumes of ammonia gas are given off.

#### PREVENTION OF HEAT ILLNESS IN THE INDUSTRIAL ENVIRONMENT

*Industrial Hygiene News Report*, VII(11), Nov 1964.

In industrial environments, heat illness can be prevented by regulating work and rest cycles for workers to insure that the total heat load (environmental and metabolic) is maintained within tolerable limits, according to David Minard, MD, Chairman of the Department of Occupational Health, University of Pittsburgh (Pittsburgh, Pa. 15213). Speaking at a meeting of the Industrial Medical Association of Pittsburgh-Cleveland on September 25, Dr. Minard classified heat illness into five categories: imbalance of water and electrolytes (salt and/or water depletion heat exhaustion); circulatory insufficiency (heat syncope); skin disorders (heat rash and anhidrotic heat exhaustion); thermoregulatory failure (heat stroke and heat hyperpyrexia); and psychological disorders (acute and chronic heat fatigue).

To assess heat stress, Dr. Minard named three indices that may be used—the Effective Temperature Scale, the Heat Stress Index of Belding and Hatch, and the Predicted 4-Hourly Sweat Rate—but he stressed that a valid index of heat stress must weigh physical factors of radiant heat, air temperature, humidity, and air movement in terms of their combined effects on physiological functions. Factors which reduce heat tolerance are lack of heat acclimatization, salt and/or water depletion, improper clothing, aging, obesity, and clinical disease of the circulatory and cutaneous



systems, he said, and added that patients on low salt diets or under treatment with hypotensive and diuretic drugs are particularly susceptible to heat death.

Ways of preventing heat strain in workers, when engineering methods such as radiant screening and ventilation are impractical, were given as follows: (a) select heat tolerant workers; (b) graduate exposure to insure maximum acclimatization; (c) maintain water and salt balance; (d) regulate work-rest cycles; (e) provide cooled recovery rooms; and (f) provide heat protective clothing which employs the principles of reflection, insulation, and ventilation.

### X-33 WATER REPELLENT

*USDHEW, Food and Drug Administration, Wash. 25, D. C. for release August 30, 1964.*

The Food and Drug Administration, Department of Health, Education, and Welfare, today asked State and other local health and safety officials, including fire departments, for help in removing from the market "X-33 Water Repellent," an extremely flammable masonry water proofer.

Food and Drug Commissioner George P. Larrick said that "X-33" has caused three deaths and over 30 injuries through flash explosions.

To date, the Government has seized almost 500 shipments of the misbranded "X-33". However, it is estimated that up to 1,200 shipments of the product may still be in possession of hardware stores, lumber yards, filling stations, auto supply houses, grocery stores, drug stores, and feed and grain dealers, etc.

The Wilmington Chemical Corporation has notified FDA that it is financially unable to recall the shipments of "X-33" still on the market. "This material represents a continuing hazard to the public," Mr. Larrick said. "We therefore recommend that all stocks of the extremely flammable "X-33" in a misbranded condition should be destroyed under the supervision of local fire authorities and that State and other local officials take whatever action is available to them to order destruction," he added.

FDA said that the first "X-33" death was that of an Amboy, Minnesota housewife in May 1963. She had painted her basement walls with "X-33" and sat down to rest. The windows were reported opened and no pilot lights were on, but an explosion and flash fire

occurred nevertheless. Her husband, on the floor above, was severely burned and the roof blown off the attached garage. The housewife died two days later. The second death was that of an Ames, Iowa, woman who suffered fatal injuries from an explosion and flash fire while using "X-33" on her basement walls in September 1963. The latest "X-33" fatality involved a Gainesville, Georgia man who died of burns received while using "X-33" in a basement on June 4, 1964.

FDA said that "X-33" first appeared on the market early in 1962. As then manufactured, it had a flashpoint (the lowest temperature at which the fumes or vapor from a liquid will ignite when exposed to a flame or spark) of 40 degrees below zero Fahrenheit. The product manufactured since July 1963 has been changed and has a flashpoint of 73 degrees above zero Fahrenheit. However, little of this less hazardous product reached the market. The labels of the two products are indistinguishable.

The extremely flammable "X-33" as distributed by the Wilmington Chemical Corp. of Chicago, Ill., was in violation of the Federal Hazardous Substances Labeling Act because it did not bear proper warning regarding the hazard of the product the Agency said. The firm was notified that in order to comply with the Act, the "X-33" label must bear a stringent warning statement that would include (among other warning information) the following:

**"DANGER — EXTREMELY FLAMMABLE—  
VAPORS HIGHLY EXPLOSIVE\*\*\*** A spark from any source, even at remote points, may detonate the vapors. \*\*\*The potential hazard from the use of this product is so great, it is recommended the user, before applying the material, consult with a professional expert in handling such highly hazardous materials to minimize the chance of personal injury or property damage."

While the "X-33" produced under a different formula since July 1963 is not as flammable as the older product, labels on the cans do not indicate which product is which, FDA said.

Mr. Larrick recommended that persons who voluntarily decide to get rid of their stocks of "X-33" should consult with their local fire department regarding safe procedures for destroying such material.

## RESERVE



## SECTION

### MEDICAL SCHOOL GRADUATES TASTE NAVY LIFE ON RIVER TRIP \*

How does a medical school graduate know if he wants to spend his internship years in the United States Navy?

Probably the best way to find out is to go aboard a ship to get a first-hand look at Navy life afloat and that's just what 39 Louisiana State University School of Medicine students have done.

In order to get an even better perspective on the

Navy, they brought their wives, fiancées or girl friends.

THE STUDENTS' five-hour trip down the Mississippi River aboard the destroyer escort USS Huse is part of the subtle but determined recruiting campaign aimed at attracting medical students today.

Because medical schools don't graduate nearly enough students to meet the needs of the military services, private hospitals, public hospital and federal health facilities, the law of supply and demand has taken over with the most astute recruiter reaping the benefits.

Capt. Ralph K. Brooks of the Navy Medical Corps, who arranged the cruise, is a firm believer in letting the medical students get a good, hard look at what military service means for the young doctor.

HE FREELY ADMITS there are pros and cons regarding the benefits of spending several training years in the service before entering private practice.

Dr. Brooks emphasizes, however, that although each student must make his own decision with individual career goals in mind, it is equally essential that every possibility be thoroughly investigated.

"The years immediately after the completion of medical school are among the most important for a doctor," he said. "The experience gained often has a lot to do with the area a doctor specializes in and his level of competence.

"BECAUSE WE UNDERSTAND this, the Navy is glad to give these young people an objective look at the kind of training we can offer them," he said.

The cruise aboard the destroyer escort was highlighted by an engine room to wheel-house tour of the ship and a trip through a traditional Navy chow line.

Eighth Naval District officials are now wondering if their "chow" has some special recruiting magic.

Almost everyone went back for seconds.

#### NAVY DOCTORS HOLDING SEMINAR ON LEPROSY \*

Leprosy is so rare in the United States today that most doctors wouldn't know it if they saw it. At least not in the early stages.

That's the reason for an intensive three-day seminar on leprosy for a group of U. S. Navy doctors being held here and at the U. S. Public Health Hospital in Carville, the only leprosarium in the continental U. S.

Military concern about leprosy has increased with the growing U. S. involvement in Southeast Asia, according to Captain Ralph K. Brooks, district medical officer of the Eighth Naval District, who arranged the seminar.

"Although leprosy is almost unknown in this country, it's not uncommon in those areas of Asia where our servicemen are being sent," he said.

DR. BROOKS said the lack of knowledge about leprosy recently was brought home when a Marine in California underwent treatment a year for a "skin disorder," before it was properly diagnosed as Hansen's Disease, the term used to avoid the emotional connotations of the word leprosy.

Because early diagnosis and treatment of Hansen's disease can arrest its symptoms and prevent the unsightly and irreversible damage that historically made the victims outcasts, Dr. Brooks suggested to the Navy Surgeon General that skin specialists from major Navy hospitals across the U. S. come to see what leprosy looks like in its many stages.

Attending the meeting here are medical delegations from Navy hospitals in San Diego, Calif.; Great Lakes, Ill.; Philadelphia, Pa.; Jacksonville, Fla.; Bethesda, Md.; Beaufort, S. C., and Camp Lejeune, S. C.

DURING THEIR visit to Carville, the naval physicians met with doctors at the leprosarium, made rounds to observe patients and generally began their clinical acquaintance with the age-old affliction.

The chief point emphasized was that medicines available today are effective enough in arresting leprosy to permit many patients to lead almost normal lives.

Carville physicians noted that some of their patients are part-time students at Tulane University, while others attend Louisiana State University in Baton Rouge.

THE NAVAL doctors were told that although there is no cure for Hansen's disease at this time, sulfone drugs will arrest it promptly, often before grossly noticeable lesions have formed.

"Most American doctors, even those in the military service, will never see a case of leprosy in a career of active practice," observed Dr. Brooks. "However, in a crisis-ridden world no military physician ever knows what tomorrow will bring.

"The purpose of this meeting," he said, "is to be certain that leprosy will never come as a surprise to Navy doctors."

#### RESERVE DENTAL OFFICERS SEMINAR

The Commandant, Ninth Naval District sponsored a one-day Reserve Dental Officer Seminar at Headquarters, Ninth Naval District on 2 December 1964. Lecturers presented the latest information on topics of vital interest to Naval Reserve Dental Officers. Table clinics were presented by members of Naval Reserve Dental Company 9-6 of Evanston, Illinois. In addition to the Inactive Reserve Dental Officers, the table clinic portion of the program was attended by 100 Dental Officers from Administrative Command and the U.S. Naval Hospital, Great Lakes, Illinois. One retirement point was credited to the 70 Inactive Reserve Dental Officers attending the Seminar—From Commandant, Headquarters, Ninth Naval District, Great Lakes, Ill.

\* Submitted by Headquarters, 8th Naval District, New Orleans, La. From New Orleans States—Item of 14 and 18 November 1964, by permission of Mr. Allan Katz, author of these articles.

## MISCELLANY

### GENERAL HOSPITALS ASSUME INCREASED IMPORTANCE IN PSYCHIATRIC PATIENT CARE

The general hospital is now a facility of major significance in providing treatment for mental illness, according to figures announced by the Public Health Service, U. S. Department of Health, Education, and Welfare.

A total of 1,005 general hospitals in the United States admit psychiatric patients for diagnosis and treatment, according to preliminary results of a current hospital survey completed by the National Institute of Mental Health and the American Hospital Association.

In the most recent 12-month period, the hospitals report that they discharged 412,459 psychiatric patients. Public State and county mental hospitals, by contrast, admitted 285,244 patients in 1963.

The figures provide additional evidence that the treatment of the mentally ill in their home communities has increased sharply. They reveal that many more general hospitals provide psychiatric care than earlier studies based on incomplete data indicated.

In reporting the 412,459 discharges, the hospitals used the most recent 12-month period for which statistics are available, in most instances for 1963. The last previous estimate, of 224,000 patients discharged in 1962, was based on reports to NIMH by only 392 of the 585 general hospitals then known to admit psychiatric patients.

Hospitals surveyed include those listed by the American Hospital Association as either general hospitals (958), infirmaries (40), or general hospitals for children (7), all of which provide treatment of physical and mental illnesses. Approximately 45 percent of the total maintain separate psychiatric units within the hospital and the others admit psychiatric patients to their general medical service.

Many of these hospitals will be eligible for Federal grant-in-aid construction funds appropriated under the Community Mental Health Centers Act of 1963, as component parts of comprehensive community mental health centers.

General hospitals are assigned special priority in the statute, as potential sponsors of community mental health centers, if they are a part of a coordinated network of treatment services providing the essential elements of comprehensive care and treatment of the mentally ill.

To stimulate establishment of community centers, Congress appropriated \$150 million for Federal aid in financing up to two-thirds of the construction costs of a center. Of that total, \$35 million is available for Federal grants in the next year.

Preliminary tabulations from the new survey show that California has the largest number of general hospitals admitting psychiatric patients (71). These discharged 44,750 such patients in a recent 12-month period.

Pennsylvania had 70 hospitals admitting psychiatric patients and 22,218 discharges; Texas 65 hospitals and 21,558 discharges. Although New York had only 61 hospitals admitting psychiatric patients, 54,247 patients were discharged.

Final results of the AHA-NIMH survey will appear in a forthcoming issue of "Hospitals," the journal of the American Hospital Association. An accompanying analysis and tables will provide information on the hospitals, by size, location and type of service offered.—News Release, Public Health Service, DHEW, 7 Nov 1964.

### AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

Candidates who have participated in the Part I (written) examination of this Board given on December 11, 1964, will be notified of the results of their examination on or before February 1, 1965.

Applications for the Part I (written) examination to be given on July 2, 1965, will be accepted in the office of the Secretary during the months of January and February. All applications postmarked after February 28th will be returned to the sender. Application forms and Bulletins of the Board may be obtained by writing to the office of the Secretary,—Clyde L. Randall MD, American Board of Obstetrics and Gynecology, 100 Meadow Road, Buffalo, New York 14216.

Servicemen applying for the Part I examination are requested to submit with their application, the name of their Commanding Officer.

Diplomates of this Board are requested to keep the Secretary's office informed of any change in address.

### INDEX MEDICUS SUBSCRIPTION PRICE TO BE RAISED IN JANUARY

The National Library of Medicine has announced that increased printing costs have necessitated an increase



in the annual subscription rates for the *Index Medicus*. Free distribution of the publication will be discontinued following the December issue.

Effective January 1965, the annual subscription rates will be \$40 domestic and \$49 foreign. Orders should be sent to the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402. It is suggested that subscription orders be placed as far in advance as possible.

The Cumulated Index Medicus, published by the American Medical Association, includes all the information carried in the monthly issues. Further information on CIM may be obtained from the Circulation and Records Department of the AMA at 535 Dearborn Street, Chicago, Illinois.

### OAK KNOLL RESIDENT WINS COVETED AWARD

LCDR A. C. Rolen, third-year resident in Obstetrics and Gynecology, won the Kimbrough Award for the best resident paper presented at the Annual Armed Forces OB-Gyn Seminar held at Andrews AFB Hospital in Washington, D. C., from 26-29 October 1964.

Dr. Rolen's paper, titled "Rudimentary Uterine Horn, Obstetrical and Gynecological Implications", was based on studies of a case of this rather rare congenital anomaly which he saw at USNH, Oakland last January and on four well-documented previously unreported cases from personal experiences of other Oak Knoll staff members. It was illustrated with slides of x-ray studies, photographs made at surgery, and sketches of the anomaly. In preparation for his presentation, Dr. Rolen reviewed all known American literature on the subject—the diagnosis, care of, and conclusions reached in each case, only 65 of which have been seen in the last 50 years.

Dr. Rolen's award—an appropriately worded document and \$150 in cash—was presented by Dr. Robert A. Kimbrough, Medical Director of the American College of Obstetrics and Gynecology, for whom it is named. This is the first time the award has been presented.

Three of the award-winning resident's Oak Knoll colleagues were there to applaud his achievement. They were CAPT J. P. Semmens, Chief of Obstetrics and Gynecology, who appeared on the program with a paper on "Teenage Pregnancy and Its Special Implications", LCDR B. D. Biele, and LCDR N. K. Takaki.

Dr. Rolen earned his MD at the University of Tennessee College of Medicine, Memphis, in March 1958. He served as medical officer on the staff of Commander, Landing Squadrons 1 and 9 in the Pacific and at U. S. Naval Hospital, Yokosuka, Japan, before reporting to Oak Knoll on 23 August 1962.—From: RADM Cecil L. Andrews MC USN, CO, USNH, Oakland, California and DMO, 12th Naval District, San Francisco, California.

### THE TWELFTH GENERAL CONFERENCE ON WEIGHTS AND MEASURES

The 12th General Conference on Weights and Measures, held at the International Bureau of Weights and Measures, Paris, France, October 6-13, 1964, was attended by representatives of 37 different nations. Included were leaders from the standardizing laboratories of the major technologically advanced nations. Among the more significant accomplishments of the meeting was the designation of an atomic definition of the second—the international unit of time. This definition is temporarily based on an invariant transition of the cesium atom.<sup>1</sup>

Dr. Allen V. Astin, Director of the National Bureau of Standards, headed the American delegation to the Conference. This delegation included A. G. McNish, Chief, Metrology Division, NBS, and, as advisory members from the State Department, Dr. Abraham Friedman, Miss B. C. Gough, Mr. K. N. Skoug, Jr., J. A. Bovey, Jr., and Dr. Edgar L. Piret.

The liter, defined up to now as the volume occupied by one kilogram of water, differs from a cubic decimeter by about 28 millionths, and this discrepancy—slightly out of line with other international measurement units—has frequently caused difficulty in precision work. The Conference therefore abrogated the old definition, and made the liter merely a special name for the cubic decimeter. The resolution in which this action was taken, however, pointed out that the word "liter" should not be used to express the results of volume measurements of high precision.

In another resolution, the Conference recognized that the curie has been used as the unit of activity of a radio-active substance in a great many countries for a long time, and that in the International System of Units the unit of activity is the second to the power minus one ( $s^{-1}$ ). It was therefore agreed that the curie should be retained as a special unit, with its assigned disintegration value of  $3.7 \times 10^{10} s^{-1}$ . The symbol formally established for the curie is "Ci."

In other work, the Conference moved forward in improving the research of several of the member nations in extending electrical measurements into the high frequency region, and in broadening the bases for the Practical International Temperature Scale. During the Conference, the delegates visited the International Bureau's new ionizing radiation laboratory which had been formally opened the week preceding the Conference.<sup>1</sup>

BUMED NOTICE 5100 13 November 1964

Subj: NFPA Poster, "Safe Practice in Anesthetizing Locations"

Ref: (a) BUMEDINST 5100.1B of 24 Nov 1959

<sup>1</sup> For further details, see NBS Tech News Bull 48, No. 12 (December 1964). (Note to Editors: A release on the new time standard dated Oct 9, 1964, and numbered STR-3081, is available to editors upon request. A release on the new laboratory dated Oct 1964 and numbered STR-3086 is also available upon request.)

1. *Purpose.* To provide a poster to serve as a continuing reminder to personnel working in anesthetizing locations of the safety measures that must be observed in these areas.

2. *Background.* Subject poster, which is abstracted from NFPA Pamphlet No. 56, "Flammable Anesthetics Code," highlights the safe practice that must be observed in anesthetizing locations where flammable agents are used. NFPA Pamphlet No. 56 is an enclosure to reference (a).

3. *Action.* It is recommended that subject poster be displayed in each area in which the following flammable anesthetic agents are used: cyclopropane, divinyl ether, ethyl ether, trifluoroethyl ether, ethyl chloride, and ethylene. Ships or stations which have not received copies of subject poster, or commands which need additional copies, may request them from the Bureau of Medicine and Surgery (Code 7224) specifying the number required.

S/E. C. KENNEY

### EIGHT NEW AND REVISED CORRESPONDENCE COURSES

In an effort to keep abreast of rapid technological developments and in order to better cope with changing training requirements, the Correspondence Training Division of the Naval Medical School will shortly release eight new and revised correspondence courses. The following courses will be released:

Hematology  
Biochemistry  
Bacteriology and Mycology  
Urinalysis, Gastrointestinal Contents and  
Endocrinology  
Serology  
Tropical Medicine in the Field  
Pathologic Anatomy Technique  
Manual of the Medical Department

Applicants are desired for the course in Hematology at this time. Applications for the other above-listed courses should be held in abeyance pending notification of availability in the Medical News Letter and other service journals.—From CAPT J. H. Stover, Jr., CO, U. S. Naval Medical School, Bethesda, Md.

BUMED NOTICE 6710 6 November 1964

Subj: Federal Food, Drug, and Cosmetic Act as Amended and General Regulations for Its Enforcement, Title 21, Part 131, Warnings Required on Drugs and Devices for Over-The-Counter Sale

1. *Purpose.* To advise of a recent amendment to subject Regulations pertinent to Acetophenetidin (phenacetin)-containing preparations when dispensed to personnel without the written prescription of a physician or dentist.

2. *Background.* On the basis of studies made by the Food and Drug Administration, the Commissioner of

Food and Drugs has concluded that it is necessary for the protection of users that the label and labeling of all acetophenetidin (phenacetin)-containing preparations bear a warning statement to the following effect:

WARNING—This medication may damage the kidneys when used in large amounts or for a long period of time. Do not take more than the recommended dosage, nor take regularly for longer than 10 days without consulting your physician.

3. *Action.* Effective immediately in all facilities where acetophenetidin (phenacetin)-containing drugs, including APC tablets, are prepackaged or dispensed, except on the prescription of a physician or dentist, the above warning shall appear on the label of the item container(s).

4. *Cancellation.* This Notice is canceled upon implementation of the above action, or for record purposes 30 June 1965.

S/E. C. KENNEY

### NAVAL MEDICAL RESEARCH REPORTS

*U. S. Naval Medical Research Institute, National Naval Medical Center, Bethesda, Md.*

1. Propagation of Rickettsiella Popilliae (Dutky and Gooden) Philip and Rickettsiella Melolonthae (Krieg) Philip in Cell Cultures: MR 005.09-1200.02 Report No. 18.
2. A New Babesia in the Indian Bandicoot: MR 005.09-1606.01 Report No. 7, June 1964.
3. The Effect of Immediate Sympathectomy on Tissue Survival Following Experimental Frostbite: MR 005.01-0021.01 Report No. 4, July 1964.

*U. S. Naval Medical Research Unit No. 3, Cairo, Egypt*

1. Biological Disposition of Some Antimonyl Antibilharzial Drugs: Sodium Antimony-2, 3-Meso-Dimercapto-Succinate (Astiban) in Animals Infected with *Schistosoma Mansoni*: MR 005.09-1035.13, July 1964.
2. Tinea Capitis: A Study of 400 Egyptian Cases: MR 005.12.101.17, July 1964.
3. Hemoglobin Variants and Blood Groups Among Nubians in Egypt, U. A. R.: MR 005.06-0051.2, September 1964.
4. Possible Factors Associated With the Relatively Low Prevalence of Dental Caries Among Egyptians 1. Relationship of Enamel Solubility to Caries Experience: MR 005.12-5001.6, September 1964.

*U. S. Naval Medical Field Research Laboratory, Camp Lejeune, N. C.*

1. A preliminary Evaluation of NuV Energy Bar: MR 005.12-6001.6, October 1964.

*U. S. Naval Air Development Center, Aviation Medical Acceleration Laboratory, Johnsville, Penna.*

1. Simulation and Effects of Severe Turbulence on Jet Airline Pilots: MR 005.13-0005.10 Report No. 1, August 1964.
2. Displacement and Durational Characteristics of Lever Pressing Under a Variable Ratio Schedule and Subsequent Extinction: MR 005.13-0002.16 Report No. 14, September 1964.

*U. S. Naval Medical Research Laboratory, U. S. Naval Submarine Base, New London, Conn.*

1. Calcium Phosphorus Metabolism in Man During Acclimatization to Carbon Dioxide: MR 005.14-3002-1.10, February 1964.
2. Respiratory Acclimatization to Carbon Dioxide: MR 005.14-3002-1.11, February 1964.
3. Effect of Body Position on Meriodional Variations in Scotopic Acuity: MR 005.14-1001-1.32, February 1964.
4. Acid-Base Balance and Blood and Urine Electrolytes of Man During Acclimatization to Carbon Dioxide: MR 005.14-3002-1.12, March 1964.
5. A Factor Analytic Study of Three Signal Detection Abilities: MR 005.14-1001-2.16, April 1964.
6. Reaction Time Under Three Viewing Conditions: Binocular, Dominant Eye, and Non-Dominant Eye: MR 005.14-1001-1.33, May 1964.
7. Visual Requirement Failure by Candidates Reporting for Basic Submarine Training During 1963: MR 005.14-2001.3.4, May 1964.
8. A Review of the Rationale of the Visual Standards for Submarine Duty: MR 005.14-2001-4.07, May 1964.
9. Interactions Among Bandwidth, Center Frequency, and Type of Distortion in Speech Intelligibility: MR 005.14-1001-4.04 Report No. 432, June 1964.
10. Tritium Activity, Monitoring, Personnel Protection, and Decontamination: MR 005.14-3002-4.14 Report No. 434, June 1964.

*U. S. Naval Hospital, Clinical Investigation Center, Oakland, Calif. 94614*

1. Humpty Dumpty in Uniform, April 1964.
2. Clinical Aspects of a Serologic Study of Psychoses: MR 005.12-2101.1, July 1964.
3. Serological Distinction Between Functional Psychoses: MR 005.12-2101.1, July 1964.
4. Urinary Steroids in Neurotic and Manic-Depression: MR 005.12-2101.1, July 1964.
5. Hyperlactacidemia in Patients with Septic Abortions: MR 005.12-1408.8, October 1964.
6. The Imagery of Visual Hallucinations: MR 005.12-2101.2, October 1964.

*U. S. Naval School of Aviation Medicine, Naval Aviation Medical Center, Pensacola, Fla.*

1. A Threshold Caloric Test: Results in Normal Subjects: MR 005.13-6001 Subtask 1 Report No. 72, July 1962.

2. The Elevator Illusion: Apparent Motion of a Visual Target During Vertical Acceleration: MR 005.13-6001 Subtask 1 Report No. 89, October 1963.
3. Interdependence Among Some Factors Associated with Coronary Heart Disease: MR 005.13-3001 Subtask 2 Report No. 9, March 1964.

## SPACE AND ASTRONAUTICS ORIENTATION COURSE

This course has been established to give senior officers of the Navy a better understanding of this new technology, its application to naval warfare, and its important role in national defense. The course is in consonance with the Navy's global mission and emphasizes the significant impact of astronautics on seapower. It is primarily designed for those senior officers who have not had the opportunity to gain knowledge of astronautics and current Space programs. A highlight of the course is a visit to the space vehicle launch and control facilities at Point Arguello Naval Missile Facility and at Vandenberg Air Force Base.

Location: U. S. Naval Missile Center, Point Mugu, California

Duration of Course: Four days (Tuesday-Friday)

Convening dates of Course:

23 February 1965  
16 March 1965  
20 April 1965  
11 May 1965  
8 June 1965  
13 July 1965  
14 September 1965  
26 October 1965  
16 November 1965  
7 December 1965

BUMED Quota: One for each class

Deadline Date to Apply: Immediately for the 23 February course, and six weeks in advance for the remaining courses.

Eligibility: Rank of Commander and above. TOP SECRET Security Clearance required.

In view of the shortage of travel funds for Fiscal Year 1965, only a limited number of officers can be authorized to attend these courses on travel and per diem orders chargeable against Bureau of Medicine and Surgery funds. Eligible and interested officers who cannot be provided with travel orders to attend at Navy expense may be issued Authorization Orders by their Commanding Officers following confirmation by this Bureau that space is available in each case. Requests should be forwarded in accordance with BUMEDINST. 1520.8 and comply with the deadline dates indicated above. All requests must indicate that a security clearance of TOP SECRET has been granted to the officer requesting attendance, and if Bachelor Officer's Quarters are desired.

—Training Branch, Professional Div., BuMed.



# IMPORTANT NOTICE

## U.S. Navy Medical News Letter Renewal Request Is Required

Existing regulations require that all Bureau and office mailing lists be checked and circularized once each year in order to eliminate erroneous and duplicate mailings.

It is, therefore, requested that EACH RECIPIENT of the U. S. Navy Medical News Letter (Except U. S. Navy and Naval Reserve personnel on ACTIVE DUTY and U. S. Navy Ships and Stations) fill in and forward immediately the form appearing below if continuation on the distribution list is desired. However, all recipients, Regular and Reserve, are responsible for forwarding changes of address as they occur.

Failure to reply to the address given below by 15 February 1965 will automatically cause your name to be removed from the files. If you are in an Armed Service other than Navy, please state whether Regular, Reserve, or Retired.

Also, PLEASE PRINT LEGIBLY. If names and addresses cannot be deciphered, it is impossible to maintain correct listings.

—Editor

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(Detach here)

Commanding Officer, U. S. Naval Medical School \_\_\_\_\_  
National Naval Medical Center (date)  
Bethesda, Md., 20014  
(Attn: Addressograph Office)

I wish to continue to receive the U. S. Navy Medical News Letter.

Name \_\_\_\_\_  
or  
Activity \_\_\_\_\_ Ret \_\_\_\_\_  
or (Print or type, last name first) (rank, service, corps)  
Civilian Status \_\_\_\_\_

Address \_\_\_\_\_  
(number) (street)  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

\_\_\_\_\_  
(SIGNATURE)

DEPARTMENT OF THE NAVY  
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